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Part 1 – Claims Listing

1. (Presently amended) A virtual control system for controlling surgical equipment in an operating room while a surgeon performs a surgical procedure on a patient, comprising:
  - a virtual control device including an image of a control device located on a surface and a sensor for interrogating contact interaction of an object with the image on the surface, the virtual control device delivering an interaction signal indicative of the contact interaction of the object with the image; and
  - a system controller connected to receive the interaction signal from the virtual control device and to deliver a control signal to the surgical equipment in response to the interaction signal to control the surgical equipment in response to the contact interaction of the object with the image
2. (Presently amended) A virtual control system as defined in claim 1, wherein:
  - the object is one of a finger or a foot of the surgeon;
  - the image is one of a projected light image or a printed image of a control panel for the surgical equipment;
  - the image includes at least one contact control area which represents a control function of the surgical equipment; and
  - the interaction with the image is contact of the object with the contact control area.
3. (Presently amended) A virtual control system as defined in claim 2, wherein:
  - the sensor optically interrogates the contact interaction of the object with the image.
4. (Presently amended) A virtual control system as defined in claim 2, [[1,]] wherein:
  - the object is a finger of the surgeon;
  - the image of the control device is an image of [[for]] a control panel of the surgical equipment;

~~the image includes a contact control area which represents a control function of the surgical equipment;~~

the interaction with the image is contact of the surgeon's finger with the contact control area; and

10 the image of the control panel is located within a sterile field of the surgical procedure.

5. (Presently amended) A virtual control system as defined in claim 4, wherein:

the sensor optically interrogates ~~the contact~~ interaction of the surgeon's finger object with the contact control area.

6. (Presently amended) A virtual control system as defined in claim 5, wherein:

the image of the control panel includes a multiplicity of different contact control areas, each contact control area representing a different control function of  
5 the surgical equipment; and

the sensor optically interrogates the contact interaction of the surgeon's finger object with each of the different contact control areas.

7. (Presently amended) A virtual control system as defined in claim 6, wherein:

the image is a projected light image;

the virtual control device further includes an image projector which  
5 projects the light image of the control panel; and

the virtual control device projects the image of the control panel ~~on surgical drapes~~ adjacent to a surgical site and within the sterile field.

8. (Presently amended) A virtual control system as defined in claim 2,  
[[1,]] wherein:

the object is a foot of the surgeon;

the image is ~~one of a projected light image or a printed image located~~  
5 on a floor of the operating room beneath an operating table; and

~~the image includes a contact control area which represents a control function of the surgical equipment; and~~

the interaction with the image is contact of the surgeon's foot with the contact control area.

9. (Presently amended) A virtual control system as defined in claim 8, wherein:

the sensor optically interrogates ~~the contact~~ interaction of the ~~surgeon's foot object~~ with the image.

5 10. (Original) A virtual control system as defined in claim 9, wherein:

the contact control area of the image represents an activation function of the surgical equipment.

11. (Presently amended) A virtual control system as defined in claim 9, [[1,]] wherein:

~~the object is a foot of the surgeon;~~

the image is a projected light image;

5 the virtual control device further includes an image projector which projects ~~the [[a]] light image; and further comprising: image on a floor of the operating room beneath an operating table;~~

~~the image includes a contact control area which represents a control function of the surgical equipment;~~

10 ~~the interaction with the image is contact of the surgeon's foot with the contact control area; and further comprising:~~

a position tag to be attached to the surgeon's foot; and wherein:

the sensor optically interrogates the interaction of the surgeon's foot with the contact control area and also optically interrogates the position of the position 15 tag; and

the virtual control device supplies the interaction signal only upon contact with the contact control area by the foot to which the position tag is attached.

12. (Original) A virtual control system as defined in claim 11, wherein:

the virtual control device responds to the interrogated position of the position tag to control the image projector to project the image of the contact control area on the floor at a position relative to the interrogated position of the position tag.

13. (Original) A virtual control system as defined in claim 12, wherein:

the position at which the contact control area is projected on the floor relative to the position tag is laterally adjacent to the surgeon's foot.

14. (Presently amended) A virtual control system as defined in claim 12, wherein:

the system controller is connected to the virtual control device to obtain information describing the position of the projected image of the contact control area  
5 relative to the interrogated position of the position tag; and further comprising:

a system display comprising a projector connected to the system controller and operative to create a system display image presenting the information describing the ~~relative~~ position of the projected image of the contact control area relative to the interrogated position of the position tag.

15. (Presently amended) A virtual control system as defined in claim 11, [[12,]] wherein:

the system controller is connected to the virtual control device to obtain information describing the ~~relative~~ position of the projected image of the contact control area relative to the interrogated position of the position tag; and further comprising:

a face shield to be worn by the surgeon; and

a heads up display comprising a heads up projector connected to the system controller and interactive with the face shield to create a heads up display  
10 image on the face shield presenting the information describing the ~~relative~~ position of the projected image of the contact control area relative to the interrogated position of the position tag. tag on the face shield.

16. (Presently amended) A virtual control system as defined in claim 11, further comprising:

a proximity indicator connected to the system controller and responsive to the interrogated position of the position tag relative to the projected image of the 5 contact control area to signal a degree of separation between the position tag and the contact control area.

17. (Presently amended) A virtual control system as defined in claim 3, [[1-]] wherein:

~~the image includes a portion defining a contact control area with which interaction is made to control functionality of the surgical equipment; and~~

5 the ~~virtual control device~~ comprises an optical sensor which responds to reflected light from the object interacting with the contact control area to supply a signal indicative of the contact interaction of the object with the contact control area.

18. (Canceled)

19. (Presently amended) A virtual control system as defined in claim 17, [[18-]] wherein:

the signal supplied by the optical sensor relates to the degree of separation of the object from contact with the contact control area.

20. (Original) A virtual control system as defined in claim 17, wherein:

the virtual control device further comprises a light source which projects incident light onto the contact control area; and

5 interacting with the contact control area.

21. (Presently amended) A virtual control system as defined in claim 20, wherein:

the incident light projected from the light source is a pulsed beam of incident light which is scanned through a range of scanning angles over the surface 5 upon which the image is projected;

the reflected light from the object interacting with the contact control area is also derived from the pulsed incident light; and

the virtual control device further comprises a device controller connected to the light source and sensor and which is operative to determine contact

10 interaction of the object with the contact control area based on relative timing information between corresponding pulses of the incident light and the reflected light and the scanning angle of the incident light which causes the reflected light.

22. (Presently amended) A virtual control system as defined in claim 20, wherein:

the image is a projected light image; and

the virtual control device further comprises an image projector to project

5 a beam of image light to create the image and the contact control area of the image.

23. (Presently amended) A virtual control system as defined in claim 22, wherein:

the virtual control device further comprises a device controller connected to the image projector to control the image projector to project the [[a]]

5 beam of image light through a range of projection angles over the surface to create the image and the contact control area of the image;

the incident light projected from the light source is a pulsed beam of incident light which is scanned through a range of scanning angles over the surface upon which the image is projected;

10 the reflected light from the object interacting with the contact control area is also pulsed due to reflection of the pulsed incident light;

the device controller is connected to the light source to control the scanning angles of the pulsed beam of incident light in correlation with the projection angles of the beam of image light; and

15 the device controller interrogates the contact interaction of the object with the contact control area based on the correlated relationship between scanning angles of the incident light and the projection angles of the image light and the relative timing between corresponding pulses of the incident light and the reflected light.

24. (Presently amended) A virtual control system as defined in claim 20, wherein:

the virtual control device further comprises an image projector to project image light to create the image and a multiplicity of different contact control areas  
5 within the image, each contact control area representing a different control function of the surgical equipment;

the image projector projects the image light in a correlated relationship with the incident light projected by the light source; and

the virtual control device further comprises a device controller  
10 connected to the light source, the image projector and the sensor to determine the contact interaction of the object with the contact control area based on a correlation between the incident light and the reflected light and a correlation between the image light and the incident light.

25. (Presently amended) A virtual control system as defined in claim 15,  
[[1,]] wherein:

~~the system controller is connected to the surgical equipment supplies to obtain information describing from the surgical equipment concerning the status, 5 control and functionality of the surgical equipment; and further comprising:~~

the surgical equipment includes patient monitoring equipment which supplies information describing a condition of the patient during the surgical procedure; and

the heads up projector a system display comprising a system projector 10 connected to the system controller and operative to create a system display image for displaying the presents information on the face shield describing at least some of the control, status and functionality of the surgical equipment and the condition of the patient.

26.-28. (Canceled)

29. (Presently amended) A virtual control system as defined in claim 15,  
[[28,]] wherein:

virtual control device and the system controller are connected by a communication link including a wireless communication path; and

5           the system controller and the surgical equipment are connected by a communication link including a wireless communication path; and  
                 the system projector and the system controller are connected by a wireless communication path.

30.-33. (Canceled)

34. (Presently amended) A virtual control system as defined in claim 124, wherein: 1, further comprising:

5           at least one of the identification tags ~~an identification tag associated with at least one of either the surgeon or the patient, the identification tag containing information identifying at least one of the surgeon, the patient or the surgical procedure to be performed on the patient;~~ and further comprising:

                 a scanner connected to the system controller and located within the operating room, the scanner reading the information from the one identification tag; and wherein:

10          the system controller establishes control over the surgical equipment in response ~~responds to the information read from the~~ one identification tag. ~~tag to establish an initial operative setting of the surgical equipment.~~

35. (Presently amended) A virtual control system as defined in claim 34, wherein:

                 the information from the one identification tag describes the initial operative setting of the surgical equipment; and

5           the system controller responds to the initial operative setting information read from the one identification tag to establish the initial operative setting of the surgical equipment.

36. (Presently amended) A virtual control system as defined in claim 34, wherein:

                 the one identification tag contains information which describes identifies the surgeon and the surgical procedure;

5           the system controller accesses ~~includes~~ information stored in memory which correlates the surgeon with the surgeon's preferred initial operative setting of the surgical equipment for the surgical procedure; and

              the system controller establishes the initial operative setting of the surgical equipment in response to the information read from the one identification tag 10 ~~which identifies the surgeon~~ and the information stored in memory which correlates the surgeon with the surgeon's preferred initial operative setting.

37. (Presently amended) A virtual control system as defined in claim 34, wherein: 36, further comprising:

              the one identification tag ~~also~~ contains information which describes identifies the surgical procedure to be performed on the patient;

5           the system controller accesses ~~also includes~~ information stored in memory which correlates ~~the~~ preferred initial operative settings of the surgical equipment with the particular surgical procedure to be performed on the patient; and

              the system controller establishes the initial operative settings of the surgical equipment in response to ~~from~~ the information stored in memory and in 10 ~~response to~~ the information read from the one identification tag which describes identifies ~~the surgeon~~ and the surgical procedure.

38. (Presently amended) A virtual control system as defined in claim 34, wherein:

              the identification tag is associated with the surgeon by the surgeon wearing the identification tag.

39. (Presently amended) A virtual control system as defined in claim 38, wherein:

              the surgeon identification tag is worn by the surgeon on at least one of a surgical gown, a surgical glove or a foot cover.

40. (Original) A virtual control system as defined in claim 34, wherein:

              the identification tag is associated with the patient by attachment to surgical drapes which cover the patient during the procedure.

41. (Presently amended) A virtual control system as defined in claim 34, [[40,]] wherein:

the identification tag is associated with the patient by attachment to ~~an exposed portion~~ of the patient's body during the surgical procedure.

42. (Presently amended) A virtual control system as defined in claim 34, wherein:

the one identification tag contains information which describes identifies the surgeon and the patient;

- 5 the system controller accesses includes information stored in memory which correlates the surgeon with the patient; and

the system controller permits operation of the surgical equipment only in response to the information read from the one identification tag which identifies the surgeon correlating the surgeon and with the patient.

43. (Presently amended) A virtual control system as defined in claim 34, wherein:

the one identification tag contains information which describes identifies the surgeon;

- 5 the system controller permits operation of the surgical equipment only in response to the information read from the one identification tag which describes identifies the surgeon; and further comprising:

an input device connected to the system controller by which to supply information to the system controller; and wherein:

the system controller permits operation of the surgical equipment in response to override information supplied to the system controller through the input device if the information read from the one identification tag does not describe the surgeon.

44. (Original) A virtual control system as defined in claim 43, wherein:

the override information is a password.

45. (Presently amended) A virtual control system as defined in claim 34, wherein:

the one identification tag contains information which describes identifies the surgeon;

5 the system controller accesses includes information stored in memory which correlates the surgeon with the surgeon's preferred initial operative setting of the surgical equipment; and further comprising:

a system display comprising a projector connected to the system controller and operative to create a display image presenting the information

10 describing the surgeon's preferred initial operative setting of the surgical equipment.

46. (Canceled)

47. (Presently amended) A virtual control system as defined in claim 123, wherein: 1, further comprising:

the surgeon [[an]] identification tag is attached to the hand of the surgeon, the surgeon identification tag containing information identifying the surgeon;

5 a scanner connected to the system controller and located within the operating room, the scanner reading the information from the surgeon identification tag; and wherein:

the virtual control device further includes an image projector which projects a light image of the control panel adjacent to a surgical site within a sterile

10 field:

the interaction object interacting with the control panel image is by the hand of the surgeon; and

the system controller responds to the information read from the surgeon identification tag to permit control of the surgical equipment only in response to the interaction of the hand of the surgeon upon which the surgeon identification tag is attached with the control panel image.

48.-51. (Canceled)

52. (Presently amended) A virtual control system for controlling surgical equipment in an operating room while a surgeon performs a surgical procedure on a patient, comprising:

- an identification tag associated with at least one of the patient or  
5 attached to the hand of the surgeon, the identification tag containing information  
identifying describing at least one of the surgeon, a hand of the surgeon, a foot of the  
surgeon, the patient or the surgical procedure to be performed on the patient;
- a virtual control device including an image of a control device and a  
sensor for interrogating interaction of a hand of the surgeon with the control device  
10 image and for reading information from the identification tag, tag attached to the hand  
of the surgeon; the virtual control device delivering an interaction signal indicative of  
the interaction of the hand of the surgeon with the control device image and also  
delivering information obtained from reading the identification tag; and
- a system controller responsive to the interaction signal and the  
15 information read from the identification tag from the virtual control device to deliver a  
control signal to the surgical equipment to control the surgical equipment only in  
response to the interaction with the control device image by of the hand of the  
surgeon who is described by the information obtained by reading the identification  
tag. to which is attached the tag containing information which identifies the surgeon.
- 20 53.-55. (Canceled)
56. (Presently amended) A virtual control system as defined in claim 56,  
[[55,-]] further comprising:
- a face shield to be worn by the surgeon; and wherein:  
the display image is created by the projector on the face shield.
57. (Presently amended) A virtual control system as defined in claim 52,  
[[53,-]] further comprising:
- a display comprising a projector connected to the system controller and  
operative to create a display image at a location within the operating room removed  
5 from the surgical equipment; and
- an identification tag associated with at least one of either the surgeon or  
the patient, the identification tag containing information identifying at least one of the  
surgeon, the patient or the surgical procedure to be performed on the patient; and

a scanner connected to the system controller and located within the  
10 operating room, the scanner reading the information from the identification tag; and  
wherein:

the system controller responds to the information read from the  
identification tag to cause the projector to display information related to at least some  
of the information read from the identification tag.

58. (Presently amended) A virtual control system as defined in claim 57,  
wherein:

the information displayed ~~which is related to at least some of the~~  
~~information read from the identification tag~~ describes an initial operative setting of  
5 surgical equipment to be used in the procedure.

59. (Presently amended) A virtual control system as defined in claim 57,  
wherein:

~~the information displayed which is related to at least some of the~~  
~~information read from the identification tag~~ describes the procedure to be performed  
5 on the patient.

60. (Presently amended) A virtual control system as defined in claim 57,  
wherein:

~~the information displayed describes which is related to at least some of~~  
~~the information read from the identification tag identifies~~ the patient upon which the  
5 procedure is to be performed.

61. (Presently amended) A virtual control system as defined in claim 57,  
wherein:

~~the information displayed describes which is related to at least some of~~  
~~the information read from the identification tag identifies~~ the surgeon who is to  
5 perform the procedure.

62.-65. (Canceled)

66. (Presently amended) A method for controlling surgical equipment in an operating room while a surgeon performs a surgical procedure on a patient, comprising:

creating an image of a control device for the surgical equipment on a surface;

interrogating interaction of ~~a part of the surgeon by contact~~ with the control device image on the surface; and

controlling the surgical equipment in response to the contact interaction of the surgeon object with the image on the surface.

67. (Presently amended) A method as defined in claim 66, further comprising:

creating at least one contact control area of the control device image; and

5 interrogating contact interaction of one of a finger or a foot of the surgeon with the image on the surface to control the surgical equipment.

68. (Presently amended) A method as defined in claim 67, further comprising:

optically interrogating the contact interaction of the surgeon's finger or foot with the image.

69. (Presently amended) A method as defined in claim 66, further comprising:

projecting an optical image of a control panel for the surgical equipment on the surface;

5 including within the projected image of the control panel a contact control area which represents a control function of the surgical equipment; and

optically interrogating contact of a finger of the surgeon with the contact control area of the control panel image to control surgical equipment.

70. (Original) A method as defined in claim 69, further comprising:

projecting the image of the control panel within a sterile field of the surgical procedure.

71. (Presently amended) A method as defined in claim 69, further comprising:

projecting the image of the control panel on surgical drapes adjacent to a surgical site.

72. (Presently amended) A method as defined in claim 69, further comprising:

including in the projected optical image of the control panel a multiplicity of different contact control areas, each contact control area representing a different  
5 control function of the surgical equipment; and

optically interrogating the contact interaction of the surgeon's finger with each of the different contact control areas.

73. (Original) A method as defined in claim 66, further comprising:  
using a printed image of the control device to create the image of the control device.

74. (Presently amended) A method as defined in claim 66, further comprising:

projecting an optical image of a foot switch of the surgical equipment on a floor of the operating room;

5 including within the projected image of the foot switch a contact control area which represents an activation control function of the surgical equipment;

optically interrogating contact of a foot of the surgeon with the contact control area of the foot switch image; and

activating to activate and deactivate the surgical equipment in response  
10 to interrogated contact of the foot of the surgeon with the contact control area of the foot switch image.

75. (Original) A method as defined in claim 74, further comprising:  
attaching a position tag to the surgeon's foot; and  
optically interrogating the position of the position tag relative to the contact control area.

76. (Original) A method as defined in claim 75, further comprising:

projecting the foot switch image with the contact control area on the floor at a position relative to the interrogated position of the position tag.

77. (Presently amended) A method as defined in claim 76, further comprising:

projecting the contact control area on the floor laterally adjacent to the interrogated position of the position tag.

78. (Original) A method as defined in claim 76, further comprising:

displaying information describing the position of the projected image of the contact control area relative to the interrogated position of the position tag.

79. (Presently amended) A method as defined in claim 78, [[76,]] further comprising:

covering the surgeon's face with a face shield during the surgical procedure; and

5 projecting on the face shield information describing the position of the contact control area on the floor relative to the interrogated position of the position tag.

80. (Original) A method as defined in claim 75, further comprising:

indicating proximity of the position tag relative to the contact control area.

81. (Presently amended) A method as defined in claim 67, [[66,]] further comprising:

~~creating at least one contact control area of the image; and~~

~~optically interrogating contact interaction with the contact control area by~~

5 ~~using from light reflected from the object position of the one finger or foot relative to the contact control area.~~

82.-83. (Canceled)

84. (Presently amended) A method as defined in claim 78, [[82,]] further comprising:

obtaining information from the surgical equipment concerning the status

5 control and functionality of the surgical equipment;

using patient monitoring equipment during the surgical procedure to determine information describing a condition of the patient;

obtaining the information from the patient monitoring equipment describing the condition of the patient; and

displaying the information describing the status, control and functionality of the surgical equipment and the information describing the condition of the patient on a display remote from the patient monitoring equipment.

85. (Presently amended) A method as defined in claim 84, further comprising:

covering the surgeon's face with a face shield during the surgical procedure;

5 projecting on the face shield the information describing the position of the projected image of the contact control area relative to the interrogated position of the position tag, the information describing the status, control and functionality of the surgical equipment and the information describing the condition of the patient.

86. (Presently amended) A method as defined in claim 66, further comprising:

associating an identification tag with at least one of ~~either~~ the surgeon or the patient;

5 presenting information at [[in]] the identification tag describing identifying at least one of the surgeon, the patient or the surgical procedure to be performed on the patient;

reading the information from the identification tag; and

10 establishing an initial operative setting of the surgical equipment automatically in response to the information read from the identification tag.

87. (Original) A method as defined in claim 86, further comprising:

optically reading the information from the identification tag.

88. (Presently amended) A method as defined in claim 86, further comprising:

presenting information at [[with]] the identification tag describing the initial operative setting of the surgical equipment; and

5 establishing the initial operative setting of the surgical equipment automatically in response to reading the information describing the initial operative setting from the identification tag.

89. (Presently amended) A method as defined in claim 86, further comprising:

presenting information at [[with]] the identification tag which describes identifies the surgeon;

5 storing information which describes the surgeon's preferred initial operative setting of the surgical equipment;

correlating the information which describes identification of the surgeon with the stored information; and

establishing the initial operative setting of the surgical equipment based  
10 on correlating the information which describes the surgeon surgeon's identification and the stored information.

90. (Presently amended) A method as defined in claim 89, further comprising:

presenting information at [[with]] the identification tag which also describes identifies the surgical procedure to be performed on the patient;

5 storing information which describes the surgeon's preferred initial operative settings of the surgical equipment for each of a plurality of different particular surgical procedures;

correlating the information which describes the identified surgical procedure with the stored information; and

10 establishing the initial operative setting of the surgical equipment based on correlating the described surgical procedure and the stored information.

91. (Presently amended) A method as defined in claim 66, further comprising:

associating an identification tag with the surgeon;

presenting information at [[in]] the identification tag describing identifying 5 the surgeon;

reading the information from the identification tag;

supplying override information from a source other than the identification tag; and

permitting operation of the surgical equipment only in response to the 10 information which describes identifies the surgeon read from the identification tag or in response to the override information supplied.

92. (Original) A method as defined in claim 91, further comprising:  
supplying a password as the override information.

93. (Presently amended) A method as defined in claim 66, further comprising:

attaching an identification tag attached to the hand of the surgeon;  
presenting information at [[in]] the identification tag describing identifying

5 the surgeon;

reading the information from the identification tag;

interacting the hand of the surgeon with the image; and

permitting control of the surgical equipment only in response to the interaction of the hand of the surgeon to [[upon]] which the tag is attached with the 10 image.

94. (Presently amended) A method as defined in claim 66, further comprising:

projecting an optical [[the]] image of the control device on the [[a]] surface;

5 including a contact control area within the image which represents a control function of the surgical equipment;

creating a portion of the image separate from the contract control area;

obtaining information from the surgical equipment concerning the status, control and functionality of the surgical equipment; and

10 displaying the information describing the control, status and functionality of the surgical equipment in the portion of the image separate from the contact control area.

95. (Presently amended) A method as defined in claim 66, further comprising: ~~for use with~~

using patient monitoring equipment attached to the patient during the surgical procedure ~~by which~~ to determine information describing a condition of the 5 patient; patient, further comprising:

projecting an optical [[the]] image of the control device on the [[a]] surface;

including a contact control area within the image which represents a control function of the surgical equipment;

10 creating a portion of the image separate from the contract control area; and

obtaining information from the patient monitoring equipment describing the condition of the patient; and

15 displaying the information describing the condition of the patient in the portion of the image separate from the contact control area.

96. (Presently amended) A method as defined in claim 66, further comprising: ~~for use with~~

using patient monitoring equipment attached to the patient during the surgical procedure ~~by which~~ to determine information describing a condition of the 5 patient; patient, further comprising:

projecting an optical [[the]] image of the control device on the [[a]] surface;

including a contact control area within the image which represents a control function of the surgical equipment;

10 creating a portion first and second portions of the image separate from the contract control area;

obtaining information from the surgical equipment concerning the status, control and functionality of the surgical equipment;

obtaining information from the patient monitoring equipment describing

15 the condition of the patient;

displaying the information describing the control, status and functionality of the surgical equipment and ~~in the first portion of the image; and~~

~~displaying the information describing the condition of the patient in the second portion of the image separate from the contact control area.~~

97. (Presently amended) A method as defined in claim 96, further comprising:

optically interrogating the one finger or foot part of the surgeon with the contact control area of ~~within~~ the image to control the surgical equipment.

98. (Presently amended) A method as defined in claim 69, [[66,]] further comprising:

uttering voice commands; and

controlling ~~one of either the surgical equipment or the image in~~

5 response to the voice commands.

99. (Presently amended) A method of controlling surgical equipment in an operating room while a surgeon performs a surgical procedure on a patient, comprising:

associating attaching an identification tag to at least one of the patient  
5 or the hand of the surgeon;

presenting information at [[in]] the identification tag describing at least  
one of identifying the surgeon, a hand of the surgeon, a foot of the surgeon, the  
patient or the surgical procedure to be performed on the patient;

presenting an image of a control device for the surgical equipment;  
10 interrogating interaction of the ~~hand~~ of the surgeon with the control  
device image;

reading information from the identification tag attached to the hand of  
the surgeon while the hand of the surgeon interacts with the image;

controlling the surgical equipment only in response to the interaction  
15 with the image ~~of the hand of the surgeon who is described by the information or read~~  
~~from the identification tag. to which is attached the tag from which information was~~  
~~read which identifies the surgeon.~~

100.-102. (Canceled)

103. (Presently amended) A method as defined in claim 99, [[100,]] further comprising:

~~associating an identification tag with at least one of either the surgeon or the patient;~~

5 ~~presenting information with the identification tag identifying at least one of the surgeon, the patient or the surgical procedure to be performed on the patient;~~

~~reading the information from the identification tag; and~~

~~establishing an initial operative setting of the surgical equipment automatically in response to the information read from the identification tag.~~

104. (Presently amended) A method as defined in claim 99, [[103,]] further comprising:

~~optically reading the information from the identification tag.~~

105. (Presently amended) A method as defined in claim 99, [[103,]] further comprising:

~~presenting information at [[with]] the identification tag describing the initial operative setting of the surgical equipment; and~~

5 ~~establishing the initial operative setting of the surgical equipment automatically in response to the reading information describing the initial operative setting read from the identification tag.~~

106. (Presently amended) A method as defined in claim 103, further comprising:

~~presenting information at [[with]] the identification tag which describes identifies the surgeon;~~

5 ~~storing information which describes the surgeon's preferred initial operative setting of the surgical equipment;~~

correlating the description of the surgeon obtained from reading the surgeon's identification tag with the stored information; and

establishing the initial operative setting of the surgical equipment based  
10 on correlating the described surgeon surgeon's identification and the stored information.

107. (Presently amended) A method as defined in claim 106, further comprising:

presenting information at [[with]] the identification tag which also describes identifies the surgical procedure to be performed on the patient;

5 storing information which describes the surgeon's preferred initial operative settings of the surgical equipment for each of a plurality of different particular surgical procedures;

correlating the described identified surgical procedure with the stored information; and

10 establishing the initial operative setting of the surgical equipment based on the correlation between the described surgical procedure and the stored information.

108. (Presently amended) A method as defined in claim 99, [[100,]] further comprising:

uttering voice commands; and

5 controlling ~~one of either the surgical equipment or the display image in response to the voice commands.~~

109.-111. (Canceled)

112. (New) A virtual control system as defined in claim 10, wherein:

the image is a projected light image; and

the virtual control device further includes an image projector which projects the light image.

113. (New) A virtual control system as defined in claim 112, further comprising:

a face shield worn by the surgeon; and

a heads up projector connected to the system controller and interactive  
5 with the face shield to create a heads up display image on the face shield; and  
wherein:

the system controller is connected to the virtual control device to obtain  
information describing the position of the projected image of the contact control area  
relative to the position of the surgeon's foot; and

10 the heads up projector presents information in the heads up display  
image on the face shield describing the relative position of the projected image of the  
contact control area relative to the position of the surgeon's foot.

114. (New) A virtual control system as defined in claim 113, wherein:

virtual control device and the system controller are connected by a  
wireless communication path;

the system controller and the surgical equipment are connected by a  
5 wireless communication path; and

the heads up projector and the system controller are connected by a  
wireless communication path.

115. (New) A virtual control system as defined in claim 11, wherein:

the position tag contains information describing at least one of the  
10 surgeon, the patient or the surgical procedure to be performed on the patient; and  
further comprising:

a scanner connected to the system controller and located within the  
operating room, the scanner reading the information from the position tag; and  
wherein:

15 the system controller establishes control over the surgical equipment in  
. response to the information read from the position tag.

116. (New) A virtual control system as defined in claim 115, further  
comprising:

a patient identification tag associated with the patient and containing  
information which describes the patient; and wherein:

5 the position tag contains information which describes the surgeon;

the system controller accesses information stored in memory which correlates the surgeon and the patient;

the system controller permits operation of the surgical equipment only in response to the information read from the identification tag and the position tag which 10 correlates the surgeon with the patient.

117. (New) A virtual control system as defined in claim 116, wherein:

one of the position tag or the patient identification tag contains information describing the surgical procedure to be performed on the patient;

the system controller accesses information stored in memory which 5 describes the surgical procedure to be performed on the patient; and

the system controller permits operation of the surgical equipment only in response to the information read from the identification tag and the position tag which correlates the surgeon and the patient and the surgical procedure.

118. (New) A virtual control system as defined in claim 3, wherein:

the object which interacts by contact with the image is a finger of a hand of the surgeon;

the image is located adjacent to a surgical site and within a sterile field; 5 and further comprising:

a position tag attached to the hand of the surgeon; and wherein:

the sensor optically interrogates the interaction of the surgeon's finger with the contact control area and also optically interrogates the position of the position tag; and

10 the system controller responds to the position of the position tag to permit control of the surgical equipment only in response to the contact interaction of the finger of the hand of the surgeon upon which the position tag is attached with the contact control area.

119. (New) A virtual control system as defined in claim 118, wherein:

the position tag contains information describing at least one of the surgeon, the patient or the surgical procedure to be performed on the patient; and further comprising:

5           a scanner connected to the system controller and located within the operating room, the scanner reading the information from the position tag; and wherein:

              the system controller establishes control over the surgical equipment in response to the information read from the position tag.

120. (New) A virtual control system as defined in claim 119, further comprising:

              an identification tag associated with the patient and containing information which describes the patient; and wherein:

5           the position tag contains information which describes the surgeon;

              the system controller accesses information stored in memory which correlates the surgeon and the patient;

              the system controller permits operation of the surgical equipment only in response to the information read from the identification tag and the position tag which 10 correlates the surgeon with the patient.

121. (New) a virtual control system as defined in claim 120, wherein:

              one of the position tag or the identification tag contains information describing the surgical procedure to be performed on the patient;

              the system controller accesses information stored in memory which

5 describes the surgeon, the patient and the surgical procedure to be performed on the patient; and

              the system controller permits operation of the surgical equipment only in response to the information read from the identification tag and the position tag which correlates the surgeon and the patient and the surgical procedure.

122. (New) A virtual control system as defined in claim 52, wherein:

              the identification tag is associated with the patient.

123. (New) A virtual control system as defined in claim 52, wherein:

              the identification tag is associated with the surgeon.

124. (New) A virtual control system as defined in claim 52, wherein:

an identification tag is associated with each of the patient and the surgeon;

the identification tag is associated with the patient is a patient  
5 identification tag; and

the identification tag associated with the surgeon is a surgeon  
identification tag.

125. (New) A virtual control system as defined in claim 124, wherein:

the surgeon identification tag contains information describing at least one of the surgeon, the patient or the surgical procedure to be performed on the patient;

5 the patient identification tag contains information describing at least one of the surgeon, the patient or the surgical procedure to be performed on the patient;  
and further comprising:

a scanner connected to the system controller and located within the operating room, the scanner reading the information from the surgeon identification  
10 tag and the patient identification tag; and wherein:

the system controller permits operation of the surgical equipment in response to correlation of the information read from the surgeon identification tag and the information read from the patient identification tag.

126. (New) A virtual control system as defined in claim 123, wherein:

the surgeon identification tag is attached to the foot of the surgeon, the surgeon identification tag containing information describing the surgeon; and further comprising:

5 a scanner connected to the system controller and located within the operating room, the scanner reading the information from the surgeon identification tag; and wherein:

the virtual control device further includes an image projector which projects a light image of the control panel on the floor of the operating room;

10 the interaction with the control panel image is by the foot of the surgeon;  
and

the system controller responds to the information read from the surgeon identification tag to permit control of the surgical equipment only in response to the interaction with the control panel image of the foot of the surgeon upon which the 15 surgeon identification tag is attached.

127. (New) A virtual control system as defined in claim 126, wherein:
- the control panel image includes a control area which represents an activation function of the surgical equipment; and
- the interaction is of the foot of the surgeon with the control area which 5 represents the activation function.

128. (New) A virtual control system as defined in claim 127, wherein:
- the virtual control device controls the image projector to project the control panel image on the floor at a position relative to the position of the surgeon identification tag.

- 5 129. (New) A method as defined in claim 99, further comprising:
- associating the identification tag with the surgeon by the surgeon wearing the identification tag.

130. (New) A method as defined in claim 129, further comprising:
- the surgeon wearing the identification tag on at least one of a surgical gown, a surgical glove or a foot cover.

131. (New) A method as defined in claim 99, further comprising:
- associating the identification tag with the patient by attaching the identification tag to surgical drapes which cover the patient during the procedure.

132. (New) A method as defined in claim 99, further comprising:
- associating the identification tag with the patient by attaching the identification tag to the patient's body during the surgical procedure.

133. (New) A method as defined in claim 99, further comprising:
- presenting information at the one identification tag which describes the surgeon and the patient;
- accessing information stored in memory which correlates the surgeon 5 with the patient; and

permitting operation of the surgical equipment only in response to the information read from the one identification tag correlating the surgeon and the patient.

134. (New) A method as defined in claim 99, further comprising:

presenting information at the one identification tag which describes the surgeon;

5 permitting operation of the surgical equipment only in response to information read from the one identification tag which describes the surgeon; and

permitting operation of the surgical equipment in response to override information if the information read from the one identification tag does not describe the surgeon.

135. (New) A method as defined in claim 99, further comprising:

presenting information at the one identification tag which describes the surgeon;

the system controller accesses information stored in memory which correlates the surgeon with the surgeon's preferred initial operative setting of the surgical equipment; and

creating a display image presenting the information describing the surgeon's preferred initial operative setting of the surgical equipment.

136. (New) A method as defined in claim 99, further comprising:

associating the identification tag with the surgeon by attaching the identification tag to the hand of the surgeon, the identification tag attached to the hand of the surgeon constituting a surgeon identification tag;

5 presenting information at the surgeon identification tag identifying the surgeon;

reading the information from the surgeon identification tag;

projecting a light image of the control device adjacent to a surgical site within a sterile field;

interacting with the control device image by using the hand of the surgeon; and

permitting control of the surgical equipment only in response to the interaction of the hand of the surgeon upon which the surgeon identification tag is attached with the control device image.

137. (New) A method as defined in claim 99, further comprising:

associating an identification tag with each of the patient and the surgeon, the identification tag associated with the patient constituting a patient identification tag and the identification tag associated with the surgeon constituting a surgeon identification tag;

presenting information at the surgeon identification which describes at least one of the surgeon, the patient or the surgical procedure to be performed on the patient;

presenting information at the patient identification tag which describes at least one of the surgeon, the patient or the surgical procedure to be performed on the patient;

reading the information from the surgeon identification tag and the patient identification tag;

permitting operation of the surgical equipment in response to correlation of the information read from the surgeon identification tag and the information read from the patient identification tag.

138. (New) A method as defined in claim 99, further comprising:

associating the identification tag with the surgeon by attaching the identification tag to the foot of the surgeon, the identification tag attached to the foot of the surgeon constituting a surgeon identification tag;

5 presenting information at the surgeon identification tag containing describing the surgeon;

reading the information from the surgeon identification tag;

projecting a light image of the control device on the floor of the operating room;

10 interacting with the control device image by using the foot of the surgeon; and

permitting control of the surgical equipment only by interacting with the control device image with the foot of the surgeon upon which the surgeon identification tag is attached.

139. (New) A method as defined in claim 138, further comprising:
  - including a control area within the control device image which represents an activation function of the surgical equipment; and
  - interacting the foot of the surgeon with the control area which represents the activation function.
140. (New) A method as defined in claim 139, further comprising:
  - projecting the control device image on the floor at a position relative to the position of the surgeon identification tag.